REMARKS/ARGUMENTS:

The above Amendments and these Remarks are in reply to the Office Action mailed May 9, 2003.

In response to the Drafsperson's objections, Applicants have submitted formal drawings..

Claims 1-27 were pending and rejected. Claims 1-27 are now pending. Claims 1-27 were rejected under 35 U.S.C. §101 as being allegedly directed to non-statutory subject matter. This rejection is traversed.

The controlling cases in the determination of statutory subject matter are the Federal Circuit's rulings in *State Street Bank & Trust Co., v. Signature Financial Group,* 47 U.S.P.Q.2d 1596 (Fed Cir. July 23, 1998), and AT&T Corp. v. Excel Communications, Corp. 50 USPQ2d 1447 (Fed Cir. April 14, 1999). *State Street* holds that a claim is statutory where it recites the "transformation of data ...by a machine through a series of mathematical calculations" to provide a "concrete, tangible and useful result."

In *State Street,* the Court found the calculation of a "final share price" to be statutory subject matter. The final share price was "concrete" because it had a specific definition; it was "tangible" because it was **"momentarily fixed" in computer memory, and it was "useful" for "recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades."** **Likewise in *Excel Communications*, the Court found a claim for generating and storing a "primary interexchange carrier code (PIC) to be patentable:** "The PIC indicator represents information about the call recipient's PIC, a useful, non-abstract result that facilitates differential billing of long-distance calls made by an IXC's subscriber."

Claims 1-27 meet the requirements set forward in *State Street* and *Excel Communications* for determining whether a claim recites statutory subject matter. First, claims 1-27 recite a method for computing a diversity measure for a predetermined combinatorial structure . With respect to statutory subject matter,

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these transformations of data are precisely what the *State Street* sanctioned, as they recite one form of data

transformed into another form for a practical application.

The diversity measure generated by the claims is useful as it allows for greater ease of searching and

classification of web pages. It is noted that the given the immensity of the Internet, that ease of classification

and organization has taken on increasingly high priority. As noted in the specification "As agent based web

services develop, maintaining diversity is applicable to help ensure a full range of possible services are

considered." Contrary, to the Examiner's assertion, the use of the result need not be claimed for

the result to be considered useful. The claims at issue in *Excel Communications* did not claim the

billing use for the PIC, only its generation[1]. The diversity measure is concrete, because it has a specific

definition. The specification defines the characteristics of a combinatorial structure and indicates how the

diversity measure is derived from those characteristics. Finally, the diversity measure is tangible as it is held

for a moment in time by the claimed method. Like the claims in *Excel Communications*, the physical

storage media need not be claimed for the result to be tangible. In light of the fact that the claimed

invention performs a transformation of data through a series of mathematical calculations to produce a useful,

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[1] Claim 1 of U.S. Patent no 5,333,184 : reads:
A method for use in a telecommunications system in which interexchange calls initiated by each subscriber are automatically routed over the facilities of a particular one of a plurality of interexchange carriers associated with that subscriber, said method comprising the steps of:

generating a message record for an interexchange call between an originating subscriber and a terminating subscriber, and

including, in said message record, a primary interexchange carrier (PIC) indicator having a value which is a function of whether or not the interexchange carrier associated with said terminating subscriber is a predetermined one of said interexchange carriers.

concrete, and tangible result, it is submitted that claims 1-7 recite patentable subject matter under 35 U.S.C. 101.

Claims 1-27 stand rejected under 35 U.S.C. 112 first paragraph. Specifically, the Examiner contends that the claims at issue are enabled only for web pages, rather than for all of combinatorial structures. The examiner does not point out any claim elements that are not enabled for the broader case. Rather the examiner rests his contention upon the fact that the introductory paragraphs of the specification suggest web usage as potential use for the application. While the applications suggested in the introduction focus primarily on web applications, the descriptive sections of the application are drawn entirely towards the broader set of all combinatorial structures. In fact, the word "web" does not appear at any point in the description of the figures. The Board of Patent Appeals and Interferences has noted (Emphasis added)

> It has been consistently held that the first paragraph of 35 USC 112 required nothing more than objective enablement....How such a teaching is set forth, whether by the *use of broad descriptive terminology*, is of no importance, since a specification which teaches how to make and use the invention in terms which correspond in scope to the claims must be taken as complying with the first paragraph of 35 USC 112 *unless* there is reason to doubt the objective truth of the statements relied upon therein for enabling support. Staehlin v. Secher, 24 USPQ 2d 1513, 1516 (B.P.A.I. 1992)

The specification provides uses "broad terminology" to describe how a combinatorial structure is categorized and its diversity is measured. Unless the Examiner can provide specific examples of where the scope of the teaching is less than that of the claims or where there is reason to doubt the objective statements relied upon for proof, Applicants request that the Examiner withdraw the rejection.

Finally, the Examiner has rejected claims 1-27 under 35 U.S.C. 103(a) as being unpatentable over

Malomsoky in view of Popvic. Applicants respectfully traverse the rejection. Independent claims 1, 10, and 19

claim methods, systems, and computer readable media for:

(a)   identifying M substructures c_1 through c_M each having m elements from among the n elements
of the predetermined combinatorial structure C, where M equals n! / [(n-m)! m!];

(b)   for each substructure c_i, for i from 1 to M, determining a number n_i of the M substructures
c_1 through c_M that are similar to the substructure c_i; and

(c)   computing a first entropy $\Phi(m)$ based upon all the numbers n_i computed during step (b) and
based upon M in computed step (a);

Neither Malomsoky nor Popvic disclose "identifying M subtructures "identifying M substructures c_1 through

c_M each having m elements from among the n elements of the predetermined combinatorial structure C, where

M equals n! / [(n-m)! m!]". Malomosky, which discloses a system for modeling virtual paths does not

disclose identifying substructures each having a predetermined combinatorial substructures, determining

similarity scores, and computing entropies. Rather Malomsky discloses generating an entropy rate according

to probabilistic functions.

Popvic is similarly deficient of any mention of the claimed features. Popvic, is directed towards a

system for generating models of geometric structures. The system of Popvic generates approximations of

geometric models as groups of incrementally smaller triangles. While, the system of Popvic does disclose

systems having varying level of complexity, it does disclose separating the geometric objected into a hierarchy

of combinatorial structures, elements and substructures. Rather, Popvic discloses a gradual increase of

resolution, wherein the structure is organized into multiple models having differing numbers of vertices,

transformations between the models are established, and a final estimate is generated. Additionally, Popvic is deficient any mention of comparing the substructures to like elements, or determining an entropy according to the comparisons. Thus, as neither Popvic nor Malomsky, either alone, or in combination, disclose the features of the claimed invention. Applicants respectfully request that the Examiner withdraw his rejection.

The references cited by the Examiner but not relied upon have been reviewed, but are not believed to render the claims unpatentable, either singly or in combination.

In light of the above, it is respectfully submitted that all of the claims now pending in the subject patent application should be allowable, and a Notice of Allowance is requested. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 24-0037 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: _8/11/03_

By: _____

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